ENGINEERING, DEVELOPMENT, AND SUSTAINMENT CONTRACT (EDS) 2006

STATEMENT OF WORK

DRAFT 20040924

ATTACHMENT 1

ENGINEERING, DEVELOPMENT, AND SUSTAINMENT CONTRACT (EDS) 2006

A.0   SCOPE

The EDS 2006 contract will provide engineering and operations services for the Research and Development Space and Missile Operations (RDSMO) program office, also known as the Space Vehicle Operations Directorate (SMC DET 12/VO). The RDSMO mission is to:

- Operate experimental and demonstration satellites and missiles
- Act as the focal point and center of expertise for Department of Defense (DoD) experimental and demonstration space and missile operations
- Support space and missile research and development
- Support space and missile Developmental Test and Evaluation (DOT&E) and Initial Operational Test and Evaluation (IOT&E)

SMC DET 12/VO exercises a teaming approach to mission accomplishment. The Contractor shall be a full participant in this teaming arrangement with the Government, customers, associate contractors, and vendors. The support efforts will occur at, but not solely at, the following locations:

- Kirtland Air Force Base (AFB) NM
- Schriever AFB CO
- Camp Parks Communications Annex (CPCA) – Dublin, CA
- Deployments to Worldwide Locations

RDSMO consists of two components which include Satellite Operation Complexes (SOC) and Space Range Systems (SRS).   SOCs are ground control centers for processing telemetry, command generation, and data distribution.   They provide support for one of a kind Research and Development, Test and Evaluation (RDT&E) experiments and perform as space operations testbeds for rapid prototyping test and evaluation. SRS are deployable antenna systems which provide Telemetry, Tracking, and Commanding (TT&C) worldwide; and fixed antenna systems which provide radiometric calibration testing, anomaly resolution, and evaluation of spacecraft payload performance. To accomplish the RDSMO mission, efforts are divided into "Core" and "Customer." "Core" is defined as the minimum engineering and operations services required to maintain the RDSMO capability. "Customer" is defined as the engineering and operations services to meet specific user needs. These tasks will be explicitly defined below. Not all tasks will be required for each project; therefore delineation of which tasks apply will be outlined in each task order.

ENGINEERING, DEVELOPMENT, AND SUSTAINMENT CONTRACT (EDS) 2006

A.1 CORE ENGINEERING AND OPERATIONS

A.1.1 PROGRAM MANAGEMENT

The contractor shall perform common program management activities as part of the core effort.

A.1.1.1 The contractor shall manage basic contract requirements.

A.1.1.2 The contractor shall allocate contractor personnel and coordinate use of mission assets.

A.1.2 PROJECT MANAGEMENT

The contractor shall manage activities for core engineering and operations.

A.1.2.1 The contractor shall manage, track, and forecast the cost of on-going core engineering and operations.

A1.2.2 The contractor shall plan core projects to ensure sufficient resources are made available and significant risks are managed.

A.1.2.3 The contractor shall manage information to assist VO in the conduct of core engineering and operations.

A.1.2.4 The contractor shall comply with and participate in the Security and Information Assurance (S/IA) program in support of core engineering and operations.

A.1.3 CONCEPT EXPLORATION

The contractor shall analyze new core engineering and operations requirements, consider alternative solutions to meet functional and performance requirements, and participate in and provide input to Government-led teams.

A.1.4 SATELLITE OPERATIONS COMPLEX (SOC) ENGINEERING

The contractor shall provide engineering services for the development and sustainment of the core SOC system architecture including individual systems and the connecting backbone.

A.1.4.1 The contractor shall evaluate capacity, sustainability, and cost effectiveness of the existing core SOC system architecture, and plan long-range activities for its evolution.

A.1.4.2 The contractor shall manage requirements for the core SOC system architecture.

A.1.4.3 The contractor shall modify the core SOC system architecture.

A.1.4.4 The contractor shall develop the core SOC system architecture.

A.1.4.5 The contractor shall sustain the core SOC system architecture.

A.1.4.6 The contractor shall perform configuration management of the core SOC system architecture.

A.1.4.7 The contractor shall provide facility support for the core SOC system architecture.

A.1.5 SPACE RANGE SYSTEMS (SRS) ENGINEERING

The contractor shall provide engineering services for the development and sustainment of the core SRS.

A.1.5.1 The contractor shall evaluate capacity, sustainability, and cost effectiveness of the existing core SRS, and plan long-range activities for their evolution.

A.1.5.2   The contractor shall manage requirements for the core SRS.

A.1.5.3   The contractor shall modify the core SRS.

A.1.5.4   The contractor shall develop the core SRS.

A.1.5.5   The contractor shall sustain the core SRS.

A.1.5.6   The contractor shall perform configuration management of the core SRS.

A.1.5.7   The contractor shall provide facility support for the core SRS.

A.1.6   SPACE RANGE SYSTEM (SRS) FIELD OPERATIONS

SRS field operations, other than proficiency training, shall not be attributable to the core effort.

A.2   CUSTOMER ENGINEERING AND OPERATIONS

A.2.1   PROGRAM MANAGEMENT

Program management shall not be attributable to customer efforts.

A.2.2   PROJECT MANAGEMENT

The contractor shall manage activities required to execute customer engineering and operations.

A.2.2.1   The contractor shall track and forecast the cost and schedule of on-going customer projects.

A2.2.2   The contractor shall plan customer projects to ensure sufficient resources are made available and significant risks are managed.

A.2.2.3   The contractor shall manage project information to facilitate the conduct of engineering and operations.

A.2.2.4   The contractor shall comply with and participate in the Security and Information Assurance (S/IA) program in support of customer projects.

A.2.3   CONCEPT EXPLORATION

The contractor shall analyze new customer engineering and operations requirements, consider alternative solutions to meet functional and performance requirements, and participate in and provide input to Government-led teams.

A.2.4   SATELLITE OPERATIONS COMPLEX (SOC) ENGINEERING

The contractor shall provide engineering services for the development and sustainment of the customer SOC system architecture including individual systems and the connecting backbone.

A.2.4.1   The contractor shall evaluate capacity, sustainability, and cost effectiveness of each customer project, and plan long-range activities for its evolution.

A.2.4.2   The contractor shall manage requirements for each customer project.

A.2.4.3   The contractor shall modify each customer project.

A.2.4.4   The contractor shall develop each customer project.

A.2.4.5   The contractor shall sustain each customer project.

A.2.4.6   The contractor shall perform configuration management for each customer project in accordance with the core requirements unless otherwise specified.

A.2.4.7   The contractor shall provide facility support for each customer project.

A.2.5   SPACE RANGE SYSTEM (SRS) ENGINEERING

The contractor shall provide engineering services for the development and sustainment of the customer SRS.

A.2.5.1   The contractor shall evaluate capacity, sustainability, and cost effectiveness of the customer SRS, and plan long-range activities for their evolution.

A.2.5.2   The contractor shall manage requirements for the customer SRS.

A.2.5.3   The contractor shall modify the customer SRS.

A.2.5.4   The contractor shall develop the customer SRS.

A.2.5.5   The contractor shall sustain the customer SRS.

A.2.5.6   The contractor shall perform configuration management for the customer SRS in accordance with the core requirements unless otherwise specified.

A.2.5.7   The contractor shall provide facility support for the customer SRS.

A.2.6   SPACE RANGE SYSTEM (SRS) FIELD OPERATIONS

A.2.6.1   The contractor shall plan customer SRS missions.

A.2.6.2   The contractor shall execute customer SRS missions.

A.2.6.3   The contractor shall perform Inspections and Repairs As Necessary (IRANs) for customer SRS missions.

B.0   REFERENCE DOCUMENTS

- AFI 90-901, Operational Risk Management
- MIL-STD 882, DoD Standard Practice for System Safety
- MIL-HDBK 881, Work Breakdown Structure
- MIL-HDBK 1785, System Security Engineering Program Management Requirements
- Current DOD, AF, AFSPC, and Local Security and Information Assurance Regulations
- Current USSPACECOM and AFSPC/50SW Operating Instructions and Procedures Applicable to VO Operations
- Current SMC DET 12/VO operating procedures and configuration management
- AFSCN Interface Specification
- SMC Det 12/VO Systems Capabilities Document
- Current SMC DET 12/VO Installation Design Criteria Document
- ANSI/EIA-632-1998 Processes for Engineering a System
- IEEE 1220-1998 IEEE Standard for Application and Management of the Systems Engineering Process

ENGINEERING, DEVELOPMENT, AND SUSTAINMENT CONTRACT (EDS) 2006

1.0 PROGRAM MANAGEMENT

1.1 CORE ENGINEERING AND OPERATIONS

1.1.1 Contract Management

1.1.1.1 Provide effective coordination between the Government and the Contractor to ensure successful implementation of requirements.

1.1.1.2 Identify a single point of contact to the Government for management of the contractor effort under this contract.

1.1.1.3 Notify the Contracting Officer in writing if there is work required beyond the scope of the contract. The Contracting Officer is the only person authorized to change the terms and conditions of the contract. All technical and management interchange between the Government and the contractor personnel shall be conducted subject to this condition.

1.1.1.4 Notify the Government of any problems in meeting contract requirements as soon as the problems are known.

1.1.1.5 Ensure all contractor personnel attend Government-provided training and comply with security and information assurance guidance.

1.1.1.6 Provide a smooth and efficient transfer of responsibility during the designated phase-in period. Plan the phase-in and work with the incumbent to finalize a joint phase-in plan.
CDRL A001 Contract Performance Plan

1.1.1.7 Cooperate with the successor and the Government at the end of this contract. Maintain overall contract responsibility until successful transfer to the successor, as determined by the Government. Plan the phase-out and make the plan available for follow-on source selection activities. Work with the successor to finalize a joint phase-out plan.
CDRL A001 Contract Performance Plan

1.1.2 Resource Management

Conduct and document long-range planning activities to analyze requirements and identify new capabilities to support current and future programs. Develop a method for prioritizing these requirements. Analyze the scope of new work or extended work and verify VO's capability and capacity to accept or retain the work. In concert with the Government and/or the associate contractor, recommend which facility would optimally support the work.
CDRL A006 Technical Report - Studies, Services

1.1.2.1 Track resources used for on-going efforts and forecast resources needed for projected efforts. Provide appropriate representation and participation in meetings at various locations.
CDRL A005 Funds & Labor Hour Expenditure Report

ENGINEERING, DEVELOPMENT, AND SUSTAINMENT CONTRACT (EDS) 2006

1.1.2.2   Perform analysis on ground system loading to forecast the ability of VO's resources to support new space programs and other requirements as identified by the Air Force.

1.1.2.3   Analyze the capabilities and limitations of the SMC DET 12/VO infrastructure, the AFSCN, and other control networks in meeting future telemetry, commanding, tracking, and mission data processing requirements. Identify limitations and system deficiencies. Recommend workaround procedures or other corrective actions.

1.2   CUSTOMER ENGINEERING AND OPERATIONS

Program management shall be chargeable to the core effort and shall not be chargeable to customer efforts.

2.0   PROJECT MANAGEMENT

2.1   CORE ENGINEERING AND OPERATIONS

2.1.1   Cost Management

2.1.1.1   Maintain a Contract Work Breakdown Structure (CWBS) and integrate with cost and schedule management tools.

CDRL A002 Contract Work Breakdown Structure

2.1.1.2   Prepare cost estimates for specific projects within the scope of this SOW, using the CWBS framework on the contract. If the Government accepts the potential project and notifies the Contractor, incorporate all the proposed CWBS and schedule elements into your working CWBS and Integrated Schedule.

CDRL A003 Man-hour Estimate, Technical Cost Proposals

2.1.1.2.1 Provide informal estimates. An informal estimate is a low fidelity estimate intended to provide a general idea of how much a program will cost for a given period of performance.

2.1.1.2.2 Provide cost proposals. A cost proposal is a fully developed estimate intended to place an effort on contract.

2.1.1.3   Perform integrated management and scheduling of projects, resources, and contractor personnel, taking into consideration the impacts of government, customer, and associate contractor activities. Work with the Government and associate contractors to minimize impacts to mission operations.

CDRL A004 Integrated Master Schedule

2.1.1.4   Manage travel budgets, track actual costs, and forecast planned expenditures.

CDRL XXX

2.1.1.5   Provide reports and informal reviews integrating technical accomplishments with the cost and schedule status of work progress on the contract.

ENGINEERING, DEVELOPMENT, AND SUSTAINMENT CONTRACT (EDS) 2006

CDRL A005 Funds & Labor Hour Expenditure Report

2.1.2 Project Planning

2.1.2.1   Provide appropriate representation and participation in meetings at various locations.

2.1.2.2   Provide for flexibility to support operations that can vary from one shift, 5 days a week to 24 hours a day, 7 days a week.

2.1.2.3   Identify potential risks, assess their importance and impact to mission operations and projects, and determine alternative solutions to mitigate moderate and high risks. Provide schedule, cost and technical risk information to aid in decision-making, consistent with the Government's Risk Management Plan.

2.1.3 Information Management

Work with the Government and associate contractors to manage data. Ensure documents remain current and easily accessible.

CDRL A006 Technical Report - Studies, Services

2.1.3.1   Maintain operational procedures, technical data, test plans, test reports, evaluation plans, evaluation reports, mission interface documents, and other documents required to conduct activities assigned under this contract. Make the data available to the Government and associate contractors.

2.1.3.2   Sustain a technical library at each of the following locations: RSC, CERES, CPCA, and Deployables. The Library shall include all relevant technical information available from vendors, customers, other contractors, and the Government on the systems and components covered or delivered under this contract.

2.1.3.2.1 Identify and acquire documents, and maintain a work center library with engineering and technical data and drawings, test reports, test plans, test and evaluation analysis reports, interface documents and other documents and directives required to conduct VO mission activities. Make the data available to the Government and associate contractors.

2.1.3.2.2 Maintain a soft-copy listing of all documentation within the technical library.

2.1.3.2.3 Maintain a soft-copy of documentation when available and make them accessible to all users at each of the following locations: RSC, CERES, CPCA, and Deployables.

2.1.3.3   Use an information management system, as specified by the government, to share common-use matter across sites, with associate contractors, and with external agencies.

2.1.4 Security and Information Assurance (S/IA)

2.1.4.1   Review and comment on S/IA policy, plans, processes and procedures in support of core engineering and operations.

2.1.4.2   Review and provide recommendations to all phases of program documentation to define activities requirements, evaluate design compliance, identify design risk, and support assessments of

hardware and software. Participates in investigations of systems and networks failures, provide sensitivity and technical analysis affecting security and information assurance elements and reports results in accordance with DOD, Air Force, MAJCOM, and local policies.

2.1.4.3   Conduct analyses of System Security Engineering (SSE) programs, plans and support efforts to assess system security risks. Provide requirements definition, system trade off analysis, design reviews, and security test and evaluation. Develop system security operations concepts. Secure command, control, communications, and computer systems, security facilities and security systems for physical, communications, computer systems, and spacecraft. Develop security technology assessments that address physical, information, personnel, computer, communications, emissions, industrial and operations security concepts and requirements. Contribute SSE inputs to system specifications, cost, concept study, and other documentation. Consider security concepts and requirements for existing DOD and USAF programs for compatibility, ease of implementation, and overall security impact. Establish and maintain technical and management interfaces with associated organizations, contractor, operational/user commands, DOD agencies and other services that interface with SSE activities. Assist personnel in all facets of security working groups/Integrated Product Teams (IPT). Prepare, plan, conduct, and document security test and evaluations to meet Information Assurance requirements to include facilities, systems and networks capabilities certification and accreditation and sustainment thereof.

2.1.4.3.1 Provide system security engineering support in design, risk assessment, and systems testing. (CDRL-A005, Facility Accreditation Documentation)

2.1.4.4   Perform Communications Security (COMSEC) equipment support and maintenance for each site, in support of the appropriate COMSEC Responsible Officer (CRO), in accordance with ANNEX 6, DD FORM 254 (Department Of Defense Contract Security Classification Specification).

2.1.4.5   For acquisition systems protection, support the development and maintenance of protection guides for major command, control, communication, computer, and intelligence systems.

2.1.4.6   Participate in S/IA meetings, working groups, tests, analyses, assessments, evaluations, surveys, and surveillance in support of Core Operations. Review programs for functional readiness, policy compliance and sustainment. Formulate methodologies and procedures to execute tasks.

2.1.4.7   Comply with physical security guidelines and perform physical security duties in support of Core Operations.

2.1.4.8   Support development of security documentation and updates as necessary. (CDRL A002, Facility Accreditation Documentation)

2.1.4.9   Pursuant to 22 CFR 126.4(c) contractor will be responsible for temporary imports, temporary and permanent exports of unclassified defense articles including technical data (loaded via hard drive, CD, etc.) and the performance of technical assistance, for end-use by US Government personnel only. These activities are urgent and will be required immediately upon contractor receiving notice to this

effect through the course of the EDS Contract. Contractor will be prepared to (temporarily) import and (temporarily and permanently) export to foreign countries at the direction of the government.

2.2   CUSTOMER ENGINEERING AND OPERATIONS

2.2.1   Cost Management

2.2.1.1   Maintain a Contract Work Breakdown Structure (CWBS) and integrate with cost and schedule management tools.

CDRL A002 Contract Work Breakdown Structure

2.2.1.2   Prepare cost estimates for specific projects within the scope of this SOW, using the CWBS framework on the contract. If the Government accepts the potential project and notifies the Contractor, incorporate all the proposed CWBS and schedule elements into your working CWBS and Integrated Schedule.

CDRL A003 Man-hour Estimate, Technical Cost Proposals

2.2.1.2.1 Provide informal estimates. An informal estimate is a low fidelity estimate intended to provide a general idea of how much a program will cost for a given period of performance.

2.2.1.2.2 Provide cost proposal. A cost proposal is a fully developed estimate intended to place an effort on contract.

2.2.1.3   Perform integrated management and scheduling of projects, resources, and contractor personnel, taking into consideration the impacts of government, customer, and associate contractor activities. Work with the Government and associate contractors to minimize impacts to mission operations.

CDRL A004 Integrated Master Schedule

2.2.1.4   Manage travel budgets, track actual costs, and forecast planned expenditures.

CDRL XXX

2.2.1.5   Provide reports and informal reviews integrating technical accomplishments with the cost and schedule status of work progress on the contract.

CDRL A005 Funds & Labor Hour Expenditure Report

2.2.1.6   Provide customer briefings and written reports.

CDRL A006 Technical Report - Studies, Services

2.2.2   Project Planning

2.2.2.1   Provide appropriate representation and participation in meetings at various locations.

2.2.2.2   Provide for flexibility to support operations that can vary from one shift, 5 days a week to 24 hours a day, 7 days a week.

ENGINEERING, DEVELOPMENT, AND SUSTAINMENT CONTRACT (EDS) 2006

2.2.2.3   Identify potential risks, assess their importance and impact to mission operations and projects, and determine alternative solutions to mitigate moderate and high risks. Provide schedule, cost and technical risk information to aid in decision-making, consistent with the Government's Risk Management Plan.

2.2.3   Information Management

Work with the Government and associate contractors to manage data. Ensure documents remain current and easily accessible.

CDRL A006 Technical Report - Studies, Services

2.2.3.1   Maintain operational procedures, technical data, test plans, test reports, evaluation plans, evaluation reports, mission interface documents, and other documents required to conduct activities assigned under this contract. Make the data available to the Government and associate contractors.

2.2.3.2   Sustain a technical library at each of the following locations: RSC, CERES, MMSOC, CPCA, and Deployables. The Library shall include all relevant technical information available from vendors, customers, other contractors, and the Government on the systems and components covered or delivered under this contract.

2.2.3.2.1 Identify and acquire documents, and maintain a work center library with engineering and technical data and drawings, test reports, test plans, test and evaluation analysis reports, interface documents and other documents and directives required to conduct VO mission activities. Make the data available to the Government and associate contractors.

2.2.3.2.2 Maintain a soft-copy listing of all documentation within the technical library.

2.2.3.2.3 Maintain a soft-copy of documentation when available and make them accessible to all users at each of the following locations: RSC, CERES, MMSOC, CPCA, and Deployables.

2.2.3.3   Use an information management system, as specified by the government, to share common-use matter across sites, with associate contractors, and with external agencies.

2.2.4   Security and Information Assurance (S/IA)

2.2.4.1   Review and comment on S/IA policy, plans, processes and procedures in support of customer engineering and operations.

2.2.4.2   Review and provide recommendations to all phases of program documentation to define activities requirements, evaluate design compliance, identify design risk, and support assessments of hardware and software. Participates in investigations of systems and networks failures, provide sensitivity and technical analysis affecting security and information assurance elements and reports results in accordance with DOD, Air Force, MAJCOM, and local policies.

2.2.4.3   Conduct analyses of System Security Engineering (SSE) programs, plans and efforts to assess system security risks. Provide requirements definition, system trade off analysis, design

reviews, and security test and evaluation. Develop system security operations concepts. Secure command, control, communications, and computer systems, security facilities and security systems for physical, communications, computer systems, and spacecraft. Develop security technology assessments that address physical, information, personnel, computer, communications, emissions, industrial and operations security concepts and requirements. Contribute SSE inputs to system specifications, cost, concept study, and other documentation. Consider security concepts and requirements for existing DOD and USAF programs for compatibility, ease of implementation, and overall security impact. Establish and maintain technical and management interfaces with associated organizations, contractor, operational/user commands, DOD agencies and other services that interface with SSE activities. Assist personnel in all facets of security working groups/Integrated Product Teams (IPT). Prepare, plan, conduct, and document security test and evaluations to meet Information Assurance requirements to include facilities, systems and networks capabilities certification and accreditation and sustainment thereof.

2.2.4.3.1 Provide system security engineering support in design, risk assessment, and systems testing. (CDRL-A005, Facility Accreditation Documentation)

2.2.4.4 Perform Communications Security (COMSEC) equipment support and maintenance for each site, in support of the appropriate COMSEC Responsible Officer (CRO), in accordance with ANNEX 6, DD FORM 254 (Department Of Defense Contract Security Classification Specification).

2.2.4.5   For acquisition systems protection, support the development and maintenance of protection guides for major command, control, communication, computer, and intelligence systems.

2.2.4.6   Participate in S/IA meetings, working groups, tests, analyses, assessments, evaluations, surveys, and surveillance in support of Customer Workload. Review programs for functional readiness, policy compliance and sustainment. Formulate methodologies and procedures to execute tasks.

2.2.4.7   Comply with physical security guidelines and perform physical security duties in support of Customer Workload.

2.2.4.8   Support development of security documentation and updates as necessary. (CDRL A002, Facility Accreditation Documentation)

2.2.4.9   Pursuant to 22 CFR 126.4(c) contractor will be responsible for temporary imports, temporary and permanent exports of unclassified defense articles including technical data (loaded via hard drive, CD, etc.) and the performance of technical assistance, for end-use by US Government personnel only. These activities are urgent and will be required immediately upon contractor receiving notice to this effect through the course of the EDS Contract. Contractor will be prepared to (temporarily) import and (temporarily and permanently) export to foreign countries at the direction of the government.

ENGINEERING, DEVELOPMENT, AND SUSTAINMENT CONTRACT (EDS) 2006

3.0 CONCEPT EXPLORATION

Analyze new requirements, consider alternative solutions to meet functional and performance requirements, and participate in and provide input to Government-led teams. Recommend specific solutions except when considering new components as part of the solutions (see OCI clause).

3.1 CORE ENGINEERING AND OPERATIONS

3.1.1 Mission Requirements

Assist customers in developing mission requirements. Estimate the labor hours and associated costs to support current and future programs based on those requirements.

3.1.2 Mission Compatibility

Analyze requirements for proposed missions to determine their compatibility with existing AFSCN or other control networks and VO's ground system hardware and software capabilities.

3.1.3 Mission Risks

Identify potential risks, assess their importance and impact to mission operations and projects, and determine alternative solutions to mitigate moderate and high risks. Provide schedule, cost and technical risk information to aid in decision-making, consistent with the Government's Risk Management Plan.

3.2 CUSTOMER ENGINEERING AND OPERATIONS

3.2.1 Mission Requirements

Assist customers in developing mission requirements. Estimate the labor hours and associated costs to support current and future programs based on those requirements.

3.2.2 Mission Compatibility

Analyze requirements for proposed missions to determine their compatibility with existing AFSCN or other control networks and VO's ground system hardware and software capabilities.

3.2.3 Mission Risks

Identify potential risks, assess their importance and impact to mission operations and projects, and determine alternative solutions to mitigate moderate and high risks. Provide schedule, cost and technical risk information to aid in decision-making, consistent with the Government's Risk Management Plan.

ENGINEERING, DEVELOPMENT, AND SUSTAINMENT CONTRACT (EDS) 2006

3.2.4   Mission Transition

Support transition of missions to other agencies. Transition will include transfer of software, hardware, design documentation, drawings, manuals, test plans, and other documentation generated during the mission.

4.0   SATELLITE OPERATIONS COMPLEX (SOC) ENGINEERING

This section describes the tasks required to support SMC DET 12/VO satellite ground control complexes. These tasks are performed primarily at, but not limited to, the RDT&E Support Complex (RSC) at Kirtland AFB NM, and at the Center for Research Support (CERES), and the Multi-Mission Satellite Operations Center (MMSOC), at Schriever AFB CO. Procure and implement new systems and modifications as directed by the government. New systems and modifications include, but are not limited to, permanent installations, temporary changes, and rapid prototypes, which will require different implementation strategies within the basic set of tasks described below. (CDRL-A001, Technical Report - Studies/Services)

4.1   CORE ENGINEERING AND OPERATIONS

4.1.1   Long Range Planning of the Core System Architecture

4.1.1.1   Analyze systems hardware and software usage to improve the cost-effectiveness of the installed configuration, while supporting operational requirements. Consider overall costs, to include operational costs, sustainment costs, engineering costs, and procurement costs in determining cost effectiveness.

4.1.1.2   Recommend improvements for optimizing performance and expanding system functionality. Recommend architectural and design modifications to improve system performance and reliability in a cost-effective manner, based on the results of systems analysis. Recommend specific solutions except when considering new components as part of the solutions (see OCI clause).

4.1.1.2.1   Create and maintain metrics on operational system reliability.

4.1.1.2.2   Generate and maintain discrepancy data for each system component. Periodically analyze the discrepancy data for systemic trends. Identify to the Government both the trends and a proposed analysis approach to evaluate and resolve problems revealed by these trends. Execute the proposed analyses as directed.

4.1.1.2.3   Verify candidate solutions will meet new requirements, through inspection, analysis, demonstration, and/or test.

4.1.2 Requirements Management of the Core System Architecture

4.1.2.1   TBD

4.1.2.2   Develop and maintain test criteria for each overall system and for each system component. Update test criteria as new requirements are validated. For each of the test criteria, develop and maintain a detailed test plan, along with test execution procedures, scripts and associated data files. Develop any required additional test plans and present them to the Government for coordination.

4.1.3 Modification of the Core System Architecture

4.1.3.1   Design, develop, integrate, install, and check out modifications to systems and components to avoid system obsolescence. Address sustainability in modification designs. Obtain government approval prior to committing resources to any modification. Such support may include development of interfaces to customer-delivered systems not developed or sustained under this contract.

4.1.3.1.1 Perform version upgrades and minor modifications to systems covered by this contract as needed to maintain operational reliability and effectiveness.

4.1.3.1.2 De-integrate and remove systems or subsystems when no longer needed for any mission objectives, upon government approval.

4.1.3.2   Procure modifications to systems and components. Obtain government approval through design reviews prior to purchasing equipment.

4.1.3.3   Execute the detailed test plans at the conclusion of any system change for the systems and components affected. Present test results to the Government.

4.1.3.4   Provide user manuals for systems modified under this contract.

4.1.3.5   Provide software design documentation for software developed under this contract.

4.1.3.6   Provide vendor training and familiarization training on modified systems to government and associate contractor personnel.

4.1.4 Development of the Core System Architecture

4.1.4.1   Integrate, install, and check out all new systems and components in accordance with VO government engineering processes.   Address sustainability in new designs. Such support may include providing mission-unique communication services among VO customer facilities or assets. Such support may also include integration of customer-delivered systems not developed or sustained under this contract.

4.1.4.1   Procure new systems and components. Obtain government approval through design reviews prior to purchasing equipment.

4.1.4.2   Execute the detailed test plans at the conclusion of any system change for the systems and components affected. Present test results to the Government.

ENGINEERING, DEVELOPMENT, AND SUSTAINMENT CONTRACT (EDS) 2006

4.1.4.3   Provide user manuals for systems procured under this contract.

4.1.4.4   Provide software design documentation for software developed under this contract.

4.1.4.5   Provide vendor training and familiarization training on new systems to government and associate contractor personnel.

4.1.5   Sustainment of the Core System Architecture

This section describes the tasks required to sustain SMC DET 12/VO satellite ground control complexes (see Clause TE-H5, Government Furnished Property). (CDRL-A001, Technical Report - Studies/Services)

4.1.5.1   Procure and manage all vendor support agreements, warranties, and license agreements.

4.1.5.2   Provide materiel support. Maintain minimum levels of bench stock and spares to support the mission, such that mission capability can be recovered within a reasonable period of time (goal: 24 hours). Manage the storage, receiving, inspection, staging, packaging, distribution, disposition and delivery of equipment, supplies and consumables.

4.1.5.3   Provide vendor training and familiarization training on existing systems to government and contractor personnel.

4.1.5.4 Perform system administration functions to include software and network configuration, management and housekeeping of non-mission files, and backup archival of all files (including mission files). Create and maintain trending data on system administration functions.

4.1.5.5   Conduct performance analysis and tuning, and functional characterization on designated systems.

4.1.5.6   Conduct comprehensive maintenance and maintenance support. Conduct preventive and corrective maintenance as required. Conduct workload analysis and control to ensure efficient scheduling and use of resources.

4.1.5.7   Conduct detailed troubleshooting and maintenance with one-hour recall, 7 days per week, 24 hours per day. Document and track progress on troubleshooting efforts.

4.1.6   Configuration Management of the Core System Architecture

4.1.6.1   Manage and document the configuration of systems in accordance with government and contractor configuration management plans. Provide an initial configuration audit at one month after acceptance of responsibility and annually thereafter. (CDRL-A004, Installation Control Drawings)

4.1.6.2   Control and document all interfaces with and among systems or components. (CDRL-A006, Interface Requirements Specification)

ENGINEERING, DEVELOPMENT, AND SUSTAINMENT CONTRACT (EDS) 2006

4.1.7   Facility Support for the Core System Architecture

4.1.7.1   Define requirements for facility upgrades and equipment installation, in coordination with the local facilities contractor, consistent with core goals and systems designs.

4.1.7.2   Provide engineering, sustainment and documentation support of mission critical facility components. At the RSC, this includes technical power, grounding, uninterruptible power supplies, generator system, tempest shielding, and operational room and console configurations in accordance with the Installation Design Criteria Document.

4.2   CUSTOMER ENGINEERING AND OPERATIONS

4.2.1   Long Range Planning of Each Customer Project

4.2.1.1   Analyze systems hardware and software usage to improve the cost-effectiveness of the installed configuration, while supporting operational requirements. Consider overall costs, to include operational costs, sustainment costs, engineering costs, and procurement costs in determining cost effectiveness.

4.2.1.2   Evaluate ability of the proposed system and its implementation to meet mission requirements. Recommend modifications needed to correct system deficiencies in meeting mission requirements, while preserving performance and reliability in a cost-effective manner. Recommend specific solutions except when considering new components as part of the solutions (see OCI clause).

4.2.1.2.1 Create and maintain metrics on operational system reliability.

4.2.1.2.2 Generate and maintain discrepancy data for each system component. Periodically analyze the discrepancy data for systemic trends. Identify to the Government both the trends and a proposed analysis approach to evaluate and resolve problems revealed by these trends. Execute the proposed analyses as directed.

4.2.1.2.3 Verify candidate solutions will meet new requirements, through inspection, analysis, demonstration, and/or test.

4.2.2   Requirements Management of Each Customer Project

4.2.2.1   TBD

4.2.2.2   Develop and maintain test criteria for each overall system and for each system component. Update test criteria as new requirements are validated. For each of the test criteria, develop and maintain a detailed test plan, along with test execution procedures, scripts and associated data files. Develop any required additional test plans and present them to the Government for coordination.

4.2.3   Modification of Each Customer Project

4.2.3.1   Design, develop, integrate, install, and check out modifications to systems and components. Address sustainability in modification designs. Obtain government approval prior to committing resources to any modification.

4.2.3.1.1 Perform version upgrades and minor modifications to systems covered by this contract to maintain operational reliability and effectiveness.

4.2.3.1.2 De-integrate and remove systems or subsystems when no longer needed, upon government approval.

4.2.3.2   Procure modifications to systems and components. Obtain government approval through design reviews prior to purchasing equipment.

4.2.3.3   Execute the detailed test plans at the conclusion of any system change for the systems and components affected. Present test results to the Government.

4.2.3.4   Provide user manuals for systems modified under this contract.

4.2.3.5   Provide software design documentation for software developed under this contract.

4.2.3.6   Provide vendor training and familiarization training on modified systems to government and associate contractor personnel.

4.2.4   Development of Each Customer Project

4.2.4.1   Integrate, install, and check out all new systems and components in accordance with VO government engineering processes. Address sustainability in new designs. Such support may include providing mission-unique communication services among VO customer facilities or assets. Such support may also include integration of customer-delivered systems not developed or sustained under this contract.

4.2.4.2   Procure new systems and components. Obtain government approval through design reviews prior to purchasing equipment.

4.2.4.3   Execute the detailed test plans at the conclusion of any system change for the systems and components affected. Present test results to the Government.

4.2.4.4   Provide user manuals for systems procured under this contract.

4.2.4.5   Provide software design documentation for software developed under this contract.

4.2.4.6   Provide vendor training and familiarization training on new systems to government and associate contractor personnel.

4.2.5   Sustainment of Each Customer Project

 (CDRL-A001, Technical Report - Studies/Services)

4.2.5.1   Procure and manage all vendor support agreements, warranties, and license agreements.

4.2.5.2   Provide materiel support. Maintain minimum levels of bench stock and spares to support the mission, such that mission capability can be recovered within a reasonable period of time (goal: 24

hours). Manage the storage, receiving, inspection, staging, packaging, distribution, disposition and delivery of equipment, supplies and consumables.

4.2.5.3   Provide vendor training and familiarization training on existing systems to government and contractor personnel.

4.2.5.4   Perform system administration functions to include software and network configuration, management and housekeeping of non-mission files, and backup archival of all files (including mission files). Create and maintain trending data on system administration functions.

4.2.5.5   Conduct performance analysis and tuning, and functional characterization on designated systems.

4.2.5.6   Conduct comprehensive maintenance and maintenance support. Conduct preventive and corrective maintenance as required. Conduct workload analysis and control to ensure efficient scheduling and use of resources.

4.2.5.7   Conduct detailed troubleshooting and maintenance with one-hour recall, 7 days per week, 24 hours per day. Document and track progress on troubleshooting efforts.

4.2.6   Configuration Management of Each Customer Project

4.2.6.1   Manage and document the configuration of systems in accordance with government and contractor configuration management plans. Provide an initial configuration audit at one month after acceptance of responsibility and annually thereafter. (CDRL-A004, Installation Control Drawings)

4.2.6.2   Control and document all interfaces with and among systems or components. (CDRL-A006, Interface Requirements Specification)

4.2.7   Facility Support for Each Customer Project

4.2.7.1   Define requirements for facility upgrades and equipment installation, in coordination with the local facilities contractor, consistent with project goals and systems designs.

4.2.7.2   Provide engineering, sustainment and documentation support of mission critical facility components.   At the RSC, this includes technical power, grounding, uninterruptible power supplies, generator system, and tempest shielding, in accordance with the Installation Design Criteria Document.

5.0   SPACE RANGE SYSTEMS (SRS) ENGINEERING

5.1   CORE ENGINEERING AND OPERATIONS

5.1.1   Long Range Planning of the Core SRS

5.1.1.1   Analyze systems hardware and software usage to improve the cost-effectiveness of the installed configuration, while supporting operational requirements. Consider overall costs, to include

operational costs, sustainment costs, engineering costs, and procurement costs in determining cost effectiveness.

5.1.1.2   Recommend improvements for optimizing performance and expanding system functionality. Recommend architectural and design modifications to improve system performance and reliability in a cost-effective manner, based on the results of systems analysis. Recommend specific solutions except when considering new components as part of the solutions (see OCI clause).

5.1.1.2.1 Create and maintain metrics on operational system reliability.

5.1.1.2.2 Generate and maintain discrepancy data for each system component. Periodically analyze the discrepancy data for systemic trends. Identify to the Government both the trends and a proposed analysis approach to evaluate and resolve problems revealed by these trends. Execute the proposed analyses as directed.

5.1.1.2.3 Verify candidate solutions will meet new requirements, through inspection, analysis, demonstration, and/or test.

5.1.2   Requirements Management of the Core SRS

5.1.2.1   TBD

5.1.2.2   Develop and maintain test criteria for each overall system and for each system component. Update test criteria as new requirements are validated. For each of the test criteria, develop and maintain a detailed test plan, along with test execution procedures, scripts and associated data files. Develop any required additional test plans and present them to the Government for coordination.

5.1.3   Modification of the Core SRS

5.1.3.1   Design, develop, integrate, install, and check out modifications to systems and components to avoid system obsolescence. Address sustainability in modification designs. Obtain government approval prior to committing resources to any modification. Such support may include development of interfaces to customer-delivered systems not developed or sustained under this contract.

5.1.3.1.1 Perform version upgrades and minor modifications to systems covered by this contract as needed to maintain operational reliability and effectiveness.

5.1.3.1.2 De-integrate and remove systems or subsystems when no longer needed, upon government approval.

5.1.3.2   Procure modifications to systems and components. Obtain government approval through design reviews prior to purchasing equipment.

5.1.3.3   Execute the detailed test plans at the conclusion of any system change for the systems and components affected. Present test results to the Government.

5.1.3.4   Provide manuals for systems modified under this contract.

5.1.3.5   Provide software design documentation for software developed under this contract.

5.1.3.6   Provide vendor training and familiarization training on modified systems to government and contractor personnel.

5.1.4   Development of the Core SRS

5.1.4.1   Integrate, install, and check out all new systems and components in accordance with VO government engineering processes. Address sustainability in new designs. Such support may include providing mission-unique communication services among VO customer facilities or assets. Such support may also include integration of customer-delivered systems not developed or sustained under this contract.

5.1.4.2   Procure new systems and components. Obtain government approval through design reviews prior to purchasing equipment.

5.1.4.3   Execute the detailed test plans at the conclusion of any system change for the systems and components affected. Present test results to the Government.

5.1.4.4   Provide manuals for systems procured under this contract.

5.1.4.5   Provide software design documentation for software developed under this contract.

5.1.4.6   Provide vendor training and familiarization training on new systems to government and associate contractor personnel.

5.1.5   Sustainment of the Core SRS

This section describes the tasks required to sustain SMC DET 12/VO Space Range Systems (see Clause TE-H5, Government Furnished Property). (CDRL-A001, Technical Report - Studies/Services)

5.1.5.1   Procure and manage all vendor support agreements, warranties, and license agreements.

5.1.5.2   Provide materiel support. Maintain minimum levels of bench stock and spares to support the mission, such that mission capability can be recovered within a reasonable period of time (goal: 24 hours in-garrison). Manage the storage, receiving, inspection, staging, packaging, distribution, disposition and shipment of equipment, supplies and consumables. When required, make logistics support available 24 hours a day, 7 days a week.

5.1.5.3   Provide vendor training and familiarization training on existing systems to government and contractor personnel.

5.1.5.4 Perform system administration functions to include software and network configuration, management and housekeeping of non-mission files, and backup archival of all files (including mission files). Create and maintain trending data on systems administration functions.

5.1.5.5   Conduct systems performance analysis and calibration, and system functional characterization on designated systems.

5.1.5.6   Conduct comprehensive maintenance and maintenance support for all systems. Conduct preventive and corrective maintenance as required. Conduct workload analysis and control to ensure efficient scheduling and use of resources.

5.1.5.7   Conduct detailed troubleshooting and maintenance of the Camp Parks and Deployables systems covered by this contract, with one-hour recall, 7 days per week, 24 hours per day. Document and track progress on troubleshooting efforts.

5.1.6   Configuration Management of the Core System Architecture

5.1.6.1   Manage and document the configuration of systems in accordance with government and contractor configuration management plans. Provide an initial configuration audit at one month after acceptance of responsibility and annually thereafter. (CDRL-A004, Installation Control Drawings)

5.1.6.2   Control and document all interfaces with and among systems or components covered by this contract for the modification of existing systems or the integration of new systems. (CDRL-A006, Interface Requirements Specification)

5.1.7   Facility Support

5.1.7.1   Define requirements for facility upgrades and equipment installation, in coordination with the local facilities contractor, consistent with core goals and systems designs.

5.1.7.2   Provide engineering, sustainment and documentation support of mission critical facility components.

5.2   CUSTOMER ENGINEERING AND OPERATIONS

5.2.1   Long Range Planning of the Customer SRS

5.2.1.1   Analyze systems hardware and software usage to improve the cost-effectiveness of the installed configuration, while supporting operational requirements. Consider overall costs, to include operational costs, sustainment costs, engineering costs, and procurement costs in determining cost effectiveness.

5.2.1.2   Evaluate ability of the proposed system and its implementation to meet mission requirements. Recommend modifications needed to correct system deficiencies in meeting mission requirements, while preserving performance and reliability in a cost-effective manner. Recommend specific solutions except when considering new components as part of the solutions (see OCI clause).

5.2.1.2.1   Create and maintain metrics on operational system reliability.

5.2.1.2.2   Generate and maintain discrepancy data for each system component. Periodically analyze the discrepancy data for systemic trends. Identify to the Government both the trends and a proposed

analysis approach to evaluate and resolve problems revealed by these trends. Execute the proposed analyses as directed.

5.2.1.2.3   Verify candidate solutions will meet new requirements, through inspection, analysis, demonstration, and/or test.

5.2.2   Requirements Management of the Customer SRS

5.2.2.1   TBD

5.2.2.2   Develop and maintain test criteria for each overall system and for each system component. Update test criteria as new requirements are validated. For each of the test criteria, develop and maintain a detailed test plan, along with test execution procedures, scripts and associated data files. Develop any required additional test plans and present them to the Government for coordination.

5.2.3   Modification of the Customer SRS

5.2.3.1   Design, develop, integrate, install, and check out modifications to systems and components. Address sustainability in modification designs. Obtain government approval prior to committing resources to any modification.

5.2.3.1.1 Perform version upgrades and minor modifications to systems covered by this contract as needed to maintain operational reliability and effectiveness.

5.2.3.1.2 De-integrate and remove systems or subsystems when no longer needed, upon government approval.

5.2.3.2   Procure modifications to systems and components. Obtain government approval through design reviews prior to purchasing equipment.

5.2.3.3   Execute the detailed test plans at the conclusion of any system change for the systems and components affected. Present test results to the Government.

5.2.3.4   Provide manuals for systems modified under this contract.

5.2.3.5   Provide software design documentation for software developed under this contract.

5.2.3.6   Provide vendor training and familiarization training on modified systems to government and contractor personnel.

5.2.4   Development of the Customer SRS

5.2.4.1   Integrate, install, and check out all new systems and components, in accordance with VO government engineering processes. Address sustainability in new designs. Such support may include providing mission-unique communication services among VO customer facilities or assets. Such support may also include integration of customer-delivered systems not developed or sustained under this contract.

5.2.4.2   Procure new systems and components. Obtain government approval through design reviews prior to purchasing equipment.

5.2.4.3   Execute the detailed test plans at the conclusion of any system change for the systems and components affected. Present test results to the Government.

5.2.4.4   Provide manuals for systems procured under this contract.

5.2.4.5   Provide software design documentation for software developed under this contract.

5.2.4.6   Provide vendor training and familiarization training on new systems to government and associate contractor personnel.

5.2.5   Sustainment of the Customer SRS

This section describes the tasks required to sustain SMC DET 12/VO Space Range Systems (see Clause TE-H5, Government Furnished Property). (CDRL-A001, Technical Report - Studies/Services)

5.2.5.1   Procure and manage all vendor support agreements, warranties, and license agreements.

5.2.5.2   Provide materiel support. Maintain minimum levels of bench stock and spares to support the mission, such that mission capability can be recovered within a reasonable period of time (goal: 24 hours). Manage the storage, receiving, inspection, staging, packaging, distribution, disposition and shipment of equipment, supplies and consumables. When required, make logistics support available 24 hours a day, 7 days a week.

5.2.5.3   Provide vendor training and familiarization training on existing systems to government and contractor personnel.

5.2.5.4 Perform system administration functions to include software and network configuration, management and housekeeping of non-mission files, and backup archival of all files (including mission files). Create and maintain trending data on systems administration functions.

5.2.5.5   Conduct performance analysis and calibration, and system functional characterization on designated systems.

5.2.5.6   Conduct comprehensive maintenance and maintenance support. Conduct preventive and corrective maintenance as required. Conduct workload analysis and control to ensure efficient scheduling and use of resources.

5.2.5.7   Conduct detailed troubleshooting and maintenance of the Camp Parks and Deployables systems covered by this contract, with one-hour recall, 7 days per week, 24 hours per day. Document and track progress on troubleshooting efforts.

5.2.6   Configuration Management of the Customer SRS

5.2.6.1   Manage and document the configuration of systems in accordance with government and contractor configuration management plans. Provide an initial configuration audit at one month after acceptance of responsibility and annually thereafter. (CDRL-A004, Installation Control Drawings)

5.2.6.2   Control and document all interfaces with and among systems or components covered by this contract for the modification of existing systems or the integration of new systems. (CDRL-A006, Interface Requirements Specification)

5.2.7   Facility Support

5.2.7.1   Define requirements for facility upgrades and equipment installation, in coordination with the local facilities contractor, consistent with project goals and systems designs.

5.2.7.2   Provide engineering, sustainment and documentation support of mission critical facility components. At deployed locations, this includes technical power, grounding, uninterruptible power supplies, and generator systems.

6.0   SPACE RANGE SYSTEM (SRS) OPERATIONS

This section describes the tasks required to support SMC DET 12/VO worldwide and CPCA operations. Provide operations, operations support, engineering services, maintenance (Level 1 and Level 2), materiel support, and training for CPCA and deployable antenna systems. (CDRL-A001, Technical Report - Studies/Services)

6.1   CORE ENGINEERING AND OPERATIONS

 SRS field operations, other than proficiency training, shall not be attributable to the core effort.

6.1.1   Proficiency Training

Develop, manage, and conduct proficiency training for the deployable and CPCA systems. Review and assess operations training requirements.

6.2   CUSTOMER ENGINEERING AND OPERATIONS

6.2.1   Mission Planning

Provide operations planning to include requirements analysis, site surveys, equipment and system tests, and documentation of all planning activities for Deployables and CPCA.

6.2.2   Mission Training

Develop, manage, and conduct mission training for the deployable and CPCA systems. Review and assess operations training requirements.

6.2.3   Mission Execution

6.2.3.1   Operate SRS in accordance with customer requirements. Provide support during set-up, breakdown, and packaging of equipment.

6.2.3.2   At deployed locations, provide maintenance and support. Provide preventive and corrective maintenance as required. Execute contingency shipping of spares as required.

6.2.4 Post Mission Analysis

6.2.4.1   Perform Inspections and Repairs as Necessary (IRANs).

6.2.4.2   Document lessons learned and update procedures as necessary.

6.2.4.3   Distribute data in accordance with customer requirements.